WHAT IS CLAIMED IS:

1   1.   A programmable thermostat system for controlling space conditioning

2   equipment comprising:

3   A) at least one environmental condition sensor providing an electrical signal

4   indicative of the ambient temperature of a conditioned space in which said

5   environmental condition sensor is situated;

6   B) a transparent touch pad juxtaposed with a liquid crystal display to constitute a

7   touch screen for interactive interface with a user;

8   C) a processor, said processor including:

9   1) a central processing unit;

10   2) a real time clock;

11   3) a memory coupled to said central processing unit for storing program

12   and data information; and

13   4) an input/output unit coupled between said processor and said touch

14   screen for carrying out information transfer therebetween, said

15   input/output unit further including:

16   a) a sensor input coupled to each said environmental condition

17   sensors for receiving said electrical signal therefrom; and

18   b) a control output coupled to the space conditioning equipment for

19   issuing control signals thereto; and

20   D) a control program stored in said memory for causing said central processing

21   unit to communicate through said input/output unit to selectively:

22   1) establish on said touch screen:

23   a) a representation of a first virtual button; and

24   b) a first legend indicative of said first virtual button, if touched,

25   invoking a first setup function of said thermostat, which first setup

26   function is for entering:

27   i) power consumption ratings for each space conditioning

28   equipment component; and

29   ii) the cost rate for each type of energy used by the space

30   conditioning equipment;

31   2) read the touch screen to determine if the representation of said first

32   virtual button has been touched;

33   3) if the first virtual button has been touched, displaying a menu of cost

34   determination information entry virtual buttons on said touch

35   screen, each cost determination information entry virtual button

36   representing a type of cost information;

37   4) read the positions on the touch screen of said cost determination

38   information entry virtual buttons; and

39   5) for each cost determination information entry virtual button touched,

40   store in said memory an incremental cost information amount of

41   the type represented thereby.

1   2. The programmable thermostat system of Claim 1 which further includes, in

2   step D), the substeps:

3   6) establish on said touch screen:

4   a) a representation of a second virtual button; and

5   b) a second legend indicative of said second virtual button, if

6   touched, invoking a first interrogation function of said thermostat for

7   displaying cumulative usage of each space conditioning system

8   component;

9   7) read the touch screen to determine if the representation of said first

10   virtual button has been touched; and

11   8) if the first virtual button has been touched, displaying cumulative

12   system usage and usage cost on the touch screen.

1   3. The programmable thermostat system of Claim 1 in which one type of cost

2   entry information is the kilowatt hour schedule for the electricity supplier.

1   4. The programmable thermostat system of Claim 2 in which one type of cost

2   entry information is the kilowatt hour schedule for the electricity supplier.

1   5.   The programmable thermostat system of Claim 2 in which individual

2   cumulative usage for each system component is displayed in substep D)8).

1   6.   The programmable thermostat system of Claim 3 in which individual

2   cumulative usage for each system component is displayed in substep D)8).

1   7.   The programmable thermostat system of Claim 4 in which individual

2   cumulative usage for each system component is displayed in substep D)8).

1   8. The programmable thermostat system of Claim 2 in which said liquid crystal

2   display is a dot matrix type.

1   9. The programmable thermostat system of Claim 2 in which said liquid crystal

2   display is a dot matrix type.

1   10. The programmable thermostat system of Claim 3 in which said liquid crystal

2   display is a dot matrix type.

1   11. The programmable thermostat system of Claim 4 in which said liquid crystal

2   display is a dot matrix type.

1   12. The programmable thermostat system of Claim 5 in which said liquid crystal

2   display is a dot matrix type.

1   13. The programmable thermostat system of Claim 6 in which said liquid crystal

2   display is a dot matrix type.

1   14. The programmable thermostat system of Claim 7 in which said liquid crystal

2   display is a dot matrix type.

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